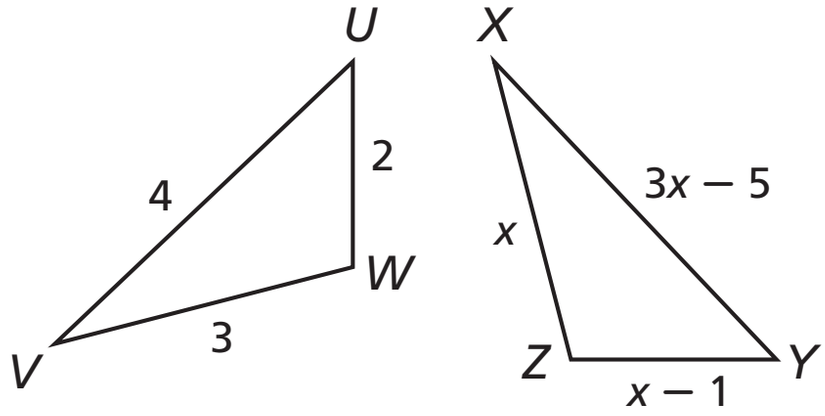
3 Verifying Triangle Congruence

Show that the triangles are congruent for the given value of the variable.

A $\triangle UVW \cong \triangle YXZ, x = 3$



$ZY = x - 1$

$= 3 - 1 = 2$

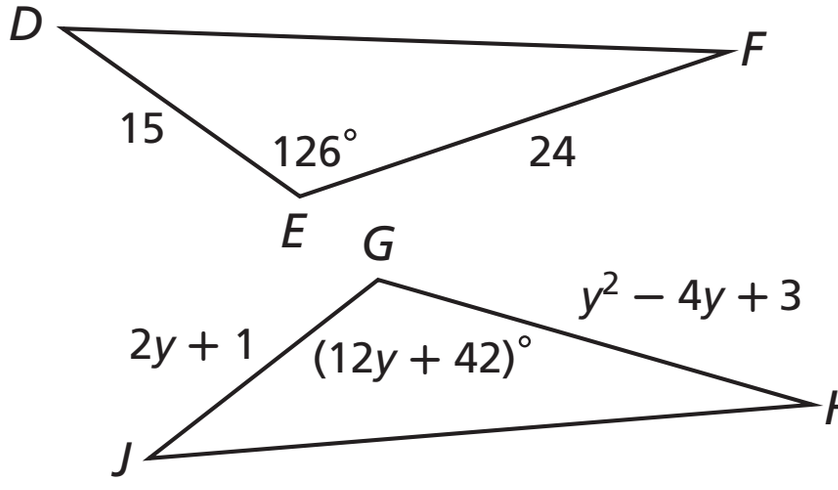
$XZ = x = 3$

$XY = 3x - 5$

$= 3(3) - 5 = 4$

$\overline{UV} \cong \overline{YX}$. $\overline{VW} \cong \overline{XZ}$, and $\overline{UW} \cong \overline{YZ}$.
So $\triangle UVW \cong \triangle YXZ$ by SSS.

B $\triangle DEF \cong \triangle JGH, y = 7$



$JG = 2y + 1$

$= 2(7) + 1$

$= 15$

$GH = y^2 - 4y + 3$

$= (7)^2 - 4(7) + 3$

$= 24$

$m\angle G = 12y + 42$

$= 12(7) + 42$

$= 126°$

$\overline{DE} \cong \overline{JG}$. $\overline{EF} \cong \overline{GH}$, and $\angle E \cong \angle G$.
So $\triangle DEF \cong \triangle JGH$ by SAS.